WHAT IS CLAIMED IS:

1. A method of monitoring the quality of a communications channel, comprising:

receiving a data signal;

establishing a zero reference phase of said data signal;

phase shifting said data signal relative to said zero reference phase to create a phase-shifted data signal;

sampling said phase-shifted data signal;

detecting bit errors in said phase-shifted data signal; and

determining a communications channel quality measurement based on said detected bit errors.

2. The method according to claim 1, wherein said step of determining a communications channel quality measurement further comprises:

accumulating a number of said bit errors and a number of detected bits; and

estimating a bit error rate according to said accumulated number of said bit errors relative to said accumulated number of detected bits.

3. The method according to claim 2, further comprising:

generating an eye diagram according to said estimated bit error rate, wherein said eye diagram characterizes the quality of the communications channel.

4. The method according to claim 1, wherein said step of detecting bit errors in said phase-shifted data signal further comprises:

comparing said phase-shifted data signal to a pattern signal.

5. The method according to claim 1, further comprising:

initiating said step of sampling said phase-shifted data signal upon receiving a request.

6. The method according to claim 1, further comprising:

discontinuing said step of sampling said phase-shifted data signal when an accumulated count of said detected bit errors exceeds a threshold value.

7. The method according to claim 1, further comprising:

sampling said phase-shifted data signal at a plurality of phase positions that are shifted relative to said zero reference phase, wherein a number of said plurality of phase positions decreases with an increase in noise in the communications channel; and

reestablishing said zero reference phase between sampling at each of said plurality of phase positions.

8. The method according to claim 7, wherein said step of reestablishing said zero reference phase further comprises:

reestablishing said zero reference phase with a first level of accuracy; and

reestablishing said zero reference phase with a second level of accuracy that is greater than said first level of accuracy.

9. The method according to claim 1, wherein said step of sampling said phase-shifted data signal further comprises:

iteratively sampling said phase-shifted data signal at a phase-shift position for a plurality of sampling windows, wherein a duration of each of said plurality of sampling windows decreases with an increase in noise in said phase-shifted data signal; and

reestablishing said zero reference phase between each of said plurality of sampling windows.

10. The method according to claim 9, wherein said step of reestablishing said zero reference phase further comprises:

reestablishing said zero reference phase with a first level of accuracy; and

reestablishing said zero reference phase with a second level of accuracy that is greater than said first level of accuracy.

11. The method according to claim 1, wherein said step of determining a communications channel quality measurement further comprises:

detecting link-level errors in said data signal; and

accumulating said detected link-level errors.

12. A method of monitoring the quality of a communications channel, comprising:

(a) receiving a data signal;

(b) establishing a zero reference phase of said data signal;

(c) phase shifting said data signal relative to said zero reference phase to create a phase-shifted data signal;

(d) sampling said phase-shifted data signal;

(e) detecting bit errors in said phase-shifted data signal;

(f) generating a communications channel quality measurement according to an accumulated number of said bit errors; and

(g) reiterating steps (b) through (f) for a plurality of phase positions that are shifted relative to said zero reference phase.

13. The method according to claim 12, wherein said step of generating a communications channel quality measurement further comprises:

accumulating a number of detected bits; and

estimating a bit error rate according to said accumulated number of said bit errors relative to said accumulated number of detected bits.

14. The method according to claim 13, further comprising:

generating an eye diagram according to said estimated bit error rate, wherein said eye diagram characterizes the quality of the communications channel.

15. The method according to claim 12, wherein said step of detecting bit errors in said phase-shifted data signal further comprises:

comparing said phase-shifted data signal to a pattern signal.

16. The method according to claim 12, wherein a number of said plurality of phase positions decreases with an increase in noise in the communications channel.

17. The method according to claim 12, wherein said step of sampling said phase-shifted data signal further comprises:

iteratively sampling said phase-shifted data signal at a phase-shift position for a plurality of sampling windows, wherein a duration of each of said plurality of sampling windows decreases with an increase in noise in said phase-shifted data signal; and

reestablishing said zero reference phase between each of said plurality of sampling windows.

18. The method according to claim 12, further comprising:

discontinuing said step of sampling said phase-shifted data signal when an accumulated count of said detected bit errors exceeds a threshold value.

19. The method according to claim 12, wherein said step of determining a communications channel quality measurement further comprises:

detecting link-level errors in said data signal; and

accumulating said detected link-level errors.

20. A method of monitoring the quality of a communications channel, comprising:

receiving a quadrature data signal;

establishing a zero reference phase of said data signal;

generating a phase-shifted data signal having a phase shift relative to said zero reference phase;

sampling said phase-shifted data signal for a plurality of phase-shift positions, wherein said zero reference phase is reestablished between sampling at each of said plurality of phase-shift positions;

detecting bit errors in said phase-shifted data signal at each of said plurality of phase-shift positions; and

generating an eye diagram according to an accumulated number of said bit errors relative to an accumulated number of phase-shifted data signal bits;

wherein said eye diagram characterizes the quality of the communications channel.